RE: Summer Research Bursary 2017

Dear Endourological Society,

As one of the recipients of the Endourological Society Summer Research Bursary, I would like to express my sincere gratitude for the support that you have provided me through this research project. I am very interested in urology and I feel lucky to be chosen as one of the recipients of the bursary this year. Working with Dr. Andonian at the McGill University Health Centre was a rewarding experience from which gained valuable skills and knowledge. I wish to pursue a clinician-researcher career in urology, and this research project has allowed me to combine clinical urology with research. This scholarship allows me to move forward in my education and reach the goals that I am pursuing.

Nephrolithiasis is an increasingly prevalent disease and a major cause of morbidity in the working-age population. Its prevalence is estimated at 11% in men and 7% in women. End stage renal disease patients (ESRD) on hemodialysis (HD) are though to develop less kidney stones compared to the general population due to their oliguric or anuric states. However, several clinicians believe that the incidence of nephrolithiasis may in fact be similar in both ESRD HD patients and the general population. Additionally, the mechanism for stone formation in the ESRD HD patients is believed to be different from their healthy counterparts as stone composition differ between the two groups. The purpose of our study was to determine the incidence of *de novo* stone formation in the ESRD HD patients as well as identify risk factors for stone development in this particular population.

Our study is a retrospective collaborative study between urology, nephrology and radiology. After I applied and obtained ethics approval for our study, I reviewed 993 charts of patients who underwent hemodialysis at our tertiary center. After selecting for our inclusion and exclusion criteria, 163 patients were included in our study. Several variables were collected and the

incidence of *de novo* stone formation was calculated. All imaging studies were reviewed by radiologists to assess for the development of *de novo* stones.

In our study, the incidence of de novo stone development in the ESRD HD patients was found to be 10.7%, a rate that is very similar to that of the general population. Also, we found that stone formers had significantly lower serum 25-hydroxyvitamin D (25(OH)VD), lower serum magnesium and higher serum uric acid levels ($p < 0.05$). Additionally, ESRD HD patients who had previous bowel surgery developed significantly more stones compared to patients who did not have prior surgery ($p < 0.05$). Interestingly, patients who suffered from hypertension formed significantly less stones than non-hypertensive patients ($p < 0.05$).

We are currently drafting the manuscript for this study which we will be submitting to the Journal of Endourology in the coming weeks.

Working on this study has taught me several skills which will be very helpful during urology residency and practice. It is the first collaborative study I was part of, and it taught me how to collaborate with other departments for research purposes. Additionally, after reviewing almost 1000 patient's charts, I learned how to find pertinent clinical information quickly and efficiently. Given that this study examined stone formation in ESRD patients, I learned about mechanisms and risk factors for stone formation as well as causes for ESRD development. Finally, I further developed my statistics knowledge and skills by analyzing all the data on SPSS.

Thank you again for your generosity and support. I continue to work very hard and I hope that one day I could have the chance to help students interested in urology, as you have helped me.

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